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BULLETIN
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TORREY BOTANICAL CLUB

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Phytogeographical explorations in the coastal plain of Georgia in 1904

ROLAND M. HARPER

In 1904 my field work was confined to the winter and spring months, in which I had not previously done any work in South Georgia. While collecting timber specimens for the Georgia State Museum I spent a month, from January 23 to February 23 inclusive, in the coastal plain, passing through the counties of Muscogee, Chattahoochee, Marion, Schley and Sumter in January, and Dooly, Wilcox, Irwin, Coffee, Appling, Ware, Clinch, Echols, Lowndes, Brooks, Thomas, Decatur, Miller, Early, Calhoun and Randolph in February. During this period flowering plants numbered 2039 to 2056 and about the same number of fungi and bryophytes were collected. At the same time I made many car-window notes on distribution, mainly of trees and evergreen shrubs.

After completing my work for the State I took the field again on March 25, and before the end of May made notes or collections in the following counties lying wholly or partly in the coastal plain: McDuffie, Columbia, Richmond, Burke, Screven, Bulloch, Emanuel, Jefferson, Washington, Wilkinson, Baldwin, Jones, Bibb, Houston, Twiggs, Laurens, Montgomery, Tattnall, Bryan, Chatham, Liberty, McIntosh, Glynn, Wayne, Pierce, Ware, Coffee, Berrien, Lowndes, Irwin, Wilcox, Dooly, Sumter, Webster, Stewart and Randolph, approximately in the order named. On this trip vascular plants numbered 2057 to 2080 were collected in March, 2081 to 2181 in April, and 2182 to 2232 in May. Seventeen numbers of mosses and thallophytes were collected at the same time.

[The BULLETIN for August (32: 397-449, *pl.* 22) was issued 28 Au 1905.]

On both trips, winter and spring together, I traveled about 2500 miles by rail * through the coastal plain, in order to examine as much of the region as possible in its vernal and prevernal aspects. At the same time about 250 photographs of coastal plain vegetation and scenery were taken, with three cameras.

The winter of 1903-4 was colder than usual in Georgia, and spring was consequently late. The first spring flower I noticed was *Alnus rugosa*, on January 23. *Acer rubrum* began to bloom in Coffee County about the first week in February, and *Pieris phillyreaefolia*, *Thyrsanthema semiflosculare* and an unidentified species of *Crataegus* in Lowndes County before the middle of the month. On the Chattahoochee River in Early County *Acer saccharinum* and two or three species of *Ulmus* were just past flowering on February 18, and *Luzula saltuensis* † was beginning to bloom in Randolph County on the 23d. But after April 1st there was no noticeable scarcity of flowers. On that date I found a *Utricularia*, a *Myriophyllum* and a *Potamogeton*, plants which one usually associates with summer, in bloom in Screven County. During the first month after the vernal equinox, before the leaves on the trees were full-grown, I spent most of the time in the Eocene region of the coastal plain, where mesophytic forests prevail (*e. g.*, in the counties of Richmond, Burke, Jefferson, Washington, Wilkinson, Twiggs and Houston), and the woods at that season were resplendent with *Aesculus Pavia*, *Cornus florida*, *Azalea nudiflora* and other characteristic spring-flowering trees and shrubs, much as in the Piedmont region (Middle Georgia) a little farther inland.

Toward the end of April I passed into and through the pine-barren region, ‡ where shade and shade-loving plants are scarce, and the most conspicuous flowers do not appear until summer. On a visit to Tybee Island at the mouth of the Savannah River on April 30 I was rather surprised at the scarcity of flowers.

* For over 600 miles of this I am indebted to the courtesy of the officials of five railroads, the Georgia, the Louisville & Wadley, the Macon, Dublin & Savannah, the Wadley & Mt. Vernon Extension, and the Georgia Southern & Florida, especially the last named.

† See Bull. Torrey Club 32 : 154. 1905.

‡ In Georgia the Cretaceous and Eocene regions together constitute about one-fourth of the area of the coastal plain, and the pine-barrens nearly three-fourths.

There seemed to be none at all in the salt marshes, and on the dunes only *Oenothera humifusa*, a *Cakile* and a *Gnaphalium* were noticed in bloom. But in the "hammocks" (low sandy elevations in the salt marshes, covered with evergreen trees and shrubs) *Helianthemum corymbosum* and *Opuntia vulgaris* were in bloom and a *Juncus* and a *Sagina* had already discharged their seeds. On McQueen Island, a brackish marsh eight miles long, midway between Savannah and Tybee, the only flowers visible from the train were those of *Scirpus Olneyi*, a *Hymenocallis* and an *Iris*, and these only at the upper end of the island (where I got off on the way back and collected them).

Most of the places of interest visited in 1904 would have little significance for persons not familiar with coastal plain geography in general and that of Georgia in particular, but there are at least two localities which deserve mention here.

In the southeastern part of Houston County, particularly for two miles north of Grovania and about the same distance south of Elko, much of the surface is strewn with siliceous boulders, and as the topography is at the same time quite rugged, such land is ill adapted for agricultural purposes and still retains its primeval forests. These forests are typically mesophytic, as is usually the case in the upper fourth of the coastal plain, but the abundance of rocks gives them a much more decided Middle Georgia aspect than in most coastal plain forests. I passed through this rocky region on the 15th and 16th of April, about the time flowers are most numerous in such places, and was interested to see such species as *Botrychium virginianum*, *Phegopteris hexagonoptera*, *Stipa avenacea*, *Melica mutica*, *Arisaema triphyllum*, *Luzula campestris*, *Erythronium americanum*, *Vagnera racemosa*, *Uvularia perfoliata*, *Salomonium biflora*, *Medeola virginica*, *Trillium Hugeri*, *T. stylosum*, *Juglans nigra*, *Hicoria ovata*, *Quercus rubra*, *Hepatica triloba*, *Sanguinaria canadensis*, *Geranium maculatum*, *Nyssa sylvatica*, *Oxypolis rigidior*, *Asclepias variegata* and *Chrysogonum virginianum*, none of which range much farther south, while they are more frequent in Middle Georgia or farther north. But the coastal plain character of this region is unmistakably shown by the occurrence, in the same forests, of *Pinus glabra*, *Tillandsia usneoides*, *Uvularia floridana*, *Smilax pumila*, *Myrica carolinensis*, *Magnolia*

grandiflora, *Acer floridanum*, *Leucothoë racemosa* and *Misadenia ovata*.

The extent of this formation east and west is unknown, but I have not heard of the occurrence of anything of the kind in any other county. The age of the formation is not definitely known either, but is doubtless either Eocene or Oligocene.

Immediately north of the northernmost of these rocky areas, and perhaps also between them, is a region with strongly calcareous soil and outcrops of soft limestone, characterized by some or



FIGURE 1. View in the rocky woods about a mile south of Elko, Houston County, April 16. Topography and vegetation rather exceptional for the coastal plain. *Polystichum acrostichoides*, *Hicoria glabra*, *Fagus americana*, *Nyssa sylvatica* and *Cornus florida* appear in the view, and the whole aspect of the place is much like that of many points in the Alleghanies and farther north.

all of the following plants: *Taxodium distichum*, *Carex cherokeensis*, *Rhaphidophyllum Hystrix*, *Arisaema Dracontium*, *Tillandsia usneoides*, *Trillium lanceolatum*, *Zephyranthes Atamasco*, *Juglans nigra*, *Hicoria ovata*, *Quercus hybrida*, *Q. acuminata*, *Morus rubra*, *Ulmus fulva*, *Crataegus* (several species), *Prunus americana*, *Cercis canadensis*, *Geranium maculatum*, *Ptelea trifoliata*, *Rhamnus caroliniana*, *Viola multicaulis*, *Bumelia lycioides*, *Spigelia marilandica*, and *Phlox divaricata*.

This limestone formation seems to form a narrow belt extending from the vicinity of Sandersville through or near Beech Hill, Danville, Westlake,* and Tivola, to Perry and perhaps Marshallville. Some people living near it have an idea that it extends from North Carolina to Mexico, but this is certainly an exaggeration. In Houston County it is commonly known as "the limestone ridge," and is dreaded by farmers who have to haul loads across it in wet



FIGURE 2. Swamp of Oconee River near Beech Hill, Wilkinson County, a point in the limestone belt here described. April 13. The trees are all deciduous, *Quercus Michauxii* being probably the most abundant. The Palmettos are *Sabal Adansonii* and *Rhipidophyllum Hystrix*, the former predominating. *Carex cherokeensis* and other species cover the ground. Shrubs are almost wanting.

weather. At other points where I have crossed it it is characterized by many of the same plants just mentioned, and may be traced by means of them in places where outcrops of the rock are wanting, as in the swamps of the Oconee and Ocmulgee rivers. (See FIGURE 2.) The limestone belt is approximately parallel with the inland edge of the pine-barrens, from which it is distant about ten miles. It is believed to be of Upper Eocene or Lower Oligocene age, but its stratigraphic relations with rocks of the same age else-

* See Bull. Torrey Club 32 : 162. 1905 ; under *Crataegus georgiana*.

where, and with the siliceous rocks just mentioned, are as yet very uncertain.

In Stewart County there is a remarkable area of genuine pine-barrens, which I first noticed in 1901,* and examined more carefully in the latter part of May, 1904. It is situated immediately south of Omaha, on a plateau which is bounded abruptly on the north by Hannahatchee Creek, and on the west by the Chattahoochee River bottoms, and is elevated something like 100 feet above both streams. The southern and eastern limits of the plateau have not been ascertained, but the pine-barrens occupy at least a square mile in the northwestern corner of it. What makes this pine-barren area remarkable is the fact that it is well within the Cretaceous region (having unmistakable exposures of Cretaceous rocks north, south, east and west of it) and is separated from the rest of the pine-barrens by the whole width of the Eocene and part of the Cretaceous, a distance of thirty or forty miles. Although *Pinus palustris*, the characteristic tree of the pine-barrens, is scattered more or less over the whole Cretaceous region of Georgia, yet nowhere else in that region have I seen it constituting the bulk of the forest as in the place here described. In the Eocene region it is still rarer, and one may go from Cuthbert twenty miles northward on the road to Lumpkin without seeing a single specimen of it, its place being taken there mostly by *P. echinata*.

The pine-barrens near Omaha are nearly level, and contain several ponds, at least one of which probably holds water all the year round. (See FIGURE 3.) The whole aspect of the place is much like that of some of the pine-barrens in the Lower Oligocene region (in Sumter County, for instance), and totally unlike that of the typical Cretaceous country, which is carved into broad valleys and rather narrow ridges, indicating a comparatively ancient topography. The long-leaf pines grow fully as large as they do anywhere, and I measured a stump of one which was 38 inches in diameter. The pines of low grounds are *P. scrotina* and *P. taeda*, instead of *P. Elliottii*, which ranges throughout the typical pine-barrens in similar situations. The following shrubs and herbs are common to this area and the typical pine-barrens, and are rare or wanting in the Eocene and the rest of the Cretaceous: *Anchistea vir-*

* See Bull. Torrey Club 30: 287, 325. 1903.

ginica, *Scirpus cylindricus*, *Xyris Smalliana*, *Eriocaulon compressum*, *Pontederia cordata*, *Pogonia divaricata*, *Brasenia purpurea*, *Polygala lutea*, *Hypericum fasciculatum*, *H. acutifolium*, *Rhexia glabella*, *Persea pubescens*, *Proserpinaca pectinata*, *Limnanthemum aquaticum*, *Vaccinium nitidum*, *Gratiola pilosa*, *G. ramosa*, *Monnicra caroliniana*, *Utricularia purpurea*, *Houstonia rotundifolia*, *Viburnum nitidum*, *Sclerolepis uniflora* and *Sericocarpus bifolius*. Two of these, *Anchistea* and *Monnina*, are reported in Mohr's Plant Life of Ala-



FIGURE 3. "Alligator Pond," in the outlying pine-barrens near Omaha. May 24. The tree in the left foreground is *Pinus serotina*, and most of those in the distance are of the same species. *Pontederia cordata* conspicuous in the foreground. (For a list of some other species observed in the same pond, see Bull. Torrey Club 30: 325-1903.) The demarcation between the pond vegetation and the surrounding shrubbery is much more abrupt here than in typical pine-barren ponds, and suggests the glacial lakes of the northern states.

bama as having been collected by Dr. E. A. Smith in the neighboring counties of Russell and Barbour in Alabama.

Now as for the cause of these outlying pine-barrens. The two superficial formations, Lafayette and Columbia, are present, as in the typical pine-barrens and most other parts of the coastal plain, but these rarely if ever determine the topography. The conclusion is irresistible that we have here between the Lafayette and Cretaceous strata an outlying patch of some Tertiary formation. Dr.

Smith suggests that it may be the Grand Gulf, which he finds to overlap a good deal of the Cretaceous and Eocene in Alabama; but the topography is not exactly that of the Altamaha Grit, which in Georgia corresponds to the Grand Gulf formation in Alabama and westward. Future explorations will probably settle this point.

The following plants of special interest were observed in South Georgia in 1904:

PELLAEA ATROPURPUREA (L.) Link

Collected on May 26 on limestone boulders in rich woods in the extreme northern part of Randolph County, about a mile from Grier's Cave (no. 2231), making one more species common to Pigeon Mountain in Northwest Georgia and the Midway Eocene region of Randolph County.* The general aspect of its surroundings is much the same at both places. No other coastal plain station for *Pellaea* seems to be known.

?SPARTINA JUNCIFORMIS Engelm. & Gray

On May 3, while approaching Brunswick, I saw from the train just outside of the city a quantity of an unfamiliar grass, and on investigating the next day I found it to be a *Spartina* (no. 2187), with slender erect stems 5 or 6 feet tall, growing in dense tufts of several hundred each. Its inflorescence is most like that of *S. junciformis*, a species of the Gulf coast, but it can hardly be that or any other described species. The leaves of my plant are concave, but not involute when fresh; and there is nothing in the existing descriptions of *S. junciformis* to indicate that it grows in such large tufts. (But probably most of these descriptions are drawn entirely from herbarium specimens, as is too often the case.) The habitat of my plant was very unusual for a *Spartina*, being a sort of combination of cypress (*Taxodium imbricarium*) pond and pine-barren stream, though probably only a few feet above tide-water. All the specimens seen were within about a hundred yards of each other.

SCIRPUS FONTINALIS Harper, Bull. Torrey

Club 30: 322. 1903

This species, previously known only from the type-locality in Sumter County, has turned up at two more South Georgia

*See Bull. Torrey Club 31: 16. 1904.

stations, quite different from the type-locality as well as from each other. On April 16, I found a few specimens beginning to flower (*no.* 2130), around a spring in the rocky woods mentioned above, about two miles south of Elko in Houston County. On May 3, I collected it again in low woods near Thalmann, Glynn County, where it was more abundant (*no.* 2185). Here it was associated with *Sabal Palmetto*, *S. Adansonii*, *Cladium effusum*, *Itea virginica*, *Rubus nigrobaccus*, *Acer rubrum*, *Pieris nitida*, *Viburnum nudum*, and some other species which seemed strangely incongruous; while at the Houston County station some of its nearest neighbors were *Hepatica*, *Sanguinaria*, *Geranium*, and other familiar northern plants. The three known localities have probably at least one feature in common however, the absence of the Lafayette formation and consequently more or less calcareous soil.

The specimens of these later collections have culms ascending or nearly erect (not nodding as in the type), and shorter and less densely tufted than in the original specimens; no tendency to proliferation in the inflorescence was observed (though this may develop later in the season); and the type specimens were evidently somewhat abnormal in these respects. The new specimens seem to be just as distinct from related species as the old ones were.

CLADIUM MARISCOIDES (Muhl.) Torr.

This is probably common enough in the glaciated region of the North, but very few stations are known for it in the South.* Consequently I was rather surprised to find a good deal of it in a grassy cypress pond between Pinehurst and Unadilla in Dooly County on May 21 (*no.* 2221). It was then not quite in flower.

The leaves of this species are different from any others known to me, and I have never seen them correctly described. Toward the base they are channeled, and a cross section there would show a shallow trough with flat bottom and erect sides. Tapering upward, the leaf gradually folds inward on its midrib, and within an inch or so of the apex the margins (remaining about the same width) become completely united, giving there a triangular cross section.

* See *Rhodora* 1: 43, 98, 204; 2: 123, 202; 5: 133; 6: 108; 7: 72; also *Mohr, Contr. U. S. Nat. Herb.* 6: 410. 1901

CAREX SQUARROSA L.

A few specimens were collected in the swamp of the Ocmulgee River at Barrow's Bluff (the present northern terminus of the Wadley and Mt. Vernon Extension R. R.), Coffee County, on May 14 (*no.* 2204). Its occurrence there is rather anomalous, for it had not previously been reported south of the mountains of Georgia ; but it is unquestionably indigenous.

CAREX WALTERIANA Bailey (*C. striata* Michx.)

With *Cladium mariscoides* (see above), also in pine-barren ponds in Screven (*no.* 2090) and Irwin counties in the Altamaha Grit region. Seen in 1903 in the eastern part of Effingham County (*no.* 1810). Not at all common.

The perigynia of this species are described in Small's Flora, and perhaps elsewhere, as "purple-brown," but they are really pale-green, just as in most species with inflated perigynia.

CAREX sp.

On May 4, I collected in a cypress pond just outside of Brunswick some over-ripe specimens of a *Carex* (*no.* 2186) which does not seem to be provided for in modern books. I at once recognized it as a species I had often before seen in summer after its fruit had all fallen, and had never collected for that reason. I afterward saw it in a number of similar places in the pine-barren region. It is so common that it must have been seen by many botanists in the past, and it has probably been described, but it is practically impossible to decide what name, if any, should apply to it. I will describe it briefly here so that future monographers may recognize it and perhaps place it correctly. It is a near relative of *C. glaucescens* Ell. or *C. verrucosa* Muhl. (if these are synonymous ; if they are not, it may be identical with one of them), but differs from the plants to which these names have been usually applied in having the pistillate spikes on stout nearly erect peduncles, and flowering always about three months earlier (*i. e.*, in March or April, like most *Carices* in that latitude).

CAREX CHEROKEENSIS Schw.

Seen on April 13 and 15 at two points in the limestone belt above mentioned, namely, in the Oconee River swamp near Beech

Hill, Wilkinson County (*no.* 2116), and in rich woods between Tivola and Beech Haven, Houston County. At the former station (see FIGURE 2) it and several of its congeners were quite abundant. This is one of the few *Carices* which shows a decided preference for calcareous soil. It does not seem to have been reported from the coastal plain of Georgia before (though I collected it in Sumter County in 1900), but it has long been known from the Palaeozoic region (Northwest Georgia), where it seems to have been first discovered.

In the description of the species in Small's Flora the word staminate is inadvertently used instead of pistillate, and in the key the descriptive phrase "Leaves pubescent" belongs to the northern representative of the group *Flexiles* (see Britton's Manual, page 206), and not to *C. cherokeensis*. This gave me some trouble in identifying it. The following characters might well be added to the existing descriptions of this very distinct species :— Rootstocks stout, elongated, horizontal, partly covered with the rigid persistent bases of the leaves ; leaves smooth and shining, tough, purple at base.

CAREX RENIFORMIS (Bailey) Small

With or near several of its congeners (but perfectly distinct from any of them) in the swamp of the Ochoopee river near the center of Tattnall County, April 26 (*no.* 2153). Previously known only from Mississippi and Louisiana.

ERIOCAULON LINEARE Small, Fl. S. E. U. S. 236. 1903

This was one of the greatest surprises of the whole trip. It was originally described from a few specimens collected in wet woods in the pine-barrens in the upper part of Bulloch County in June, 1901 ; and I never saw a trace of it again until April and May of last year. Then I was astonished to find it one of the most abundant plants in moist pine-barrens in the Altamaha Grit region, growing in countless millions in Bulloch, Tattnall, Montgomery (*no.* 2146), Coffee, Wilcox, Irwin, Berrien, and doubtless many other counties. Its habitat is exactly that of the well known and larger *E. decangulare*, which is equally abundant and conspicuous during the summer months. *E. lineare* seems to flower only in April and May (the type specimens, collected early in June, were

past their prime), and after that its scapes must disappear almost completely, and the leaves alone would attract no attention. When it is in flower *E. decangulare* can usually be found with it, but very immature and inconspicuous, and when the latter blooms the former is almost invisible. How such an abundant species as *E. lineare* could have been overlooked so long can be explained only on the supposition that it is nearly confined to the Altamaha Grit region, which up to last year had scarcely been explored in spring.*



FIGURE 4. *Eriocaulon lineare* in moist pine-barrens, Douglas, Coffee County. May 16. Two months later in the season *E. decangulare* can be found equally abundant on the same spot. (The pitcher-plants are *Sarracenia flava* in the background and *S. flava* \times *minor* in the foreground.)

If the plant had ever been seen by other botanists it was probably mistaken for *Lachnocaulon anceps* or *Dupatya flavidula*, which often grow with it and are about the same size. In its own genus it is probably nearest related to *E. compressum*, a considerably larger plant which flowers still earlier, in March and April, and grows almost always in pine-barren ponds. *E. septangulare* is nearer to it in size, but is rare in the South, growing on sandy margins of ponds and flowering in late summer.†

With more copious material at hand, the resemblance of *E.*

* See Bull. Torrey Club 32 : 142. 1905.

† See Bull. Torrey Club 31 : 14. 1904.

lineare to a plant from Sumter County (no. 1395) which I had distributed in my 1902 collection as *E. texense* Koern.* seemed very strong, so on May 21 I revisited that locality and collected some more specimens (no. 2219) on the same spot. These proved to be *E. lineare*, as I suspected; so *E. texense* seems to be known only from the original collection, after all.

I notice an unfortunate typographical error in the original description of *E. lineare*. At the end of the first line, "alternate" should be "attenuate" (referring, of course, to the apex of the leaf).

ALETNIS OBOVATA Nash; Small, Fl. S. E. U. S. 286. 22 Jl 1903
(Described more fully in *Torreyia* 3: 101, 102. 25 Jl 1903)

This is the common if not the only white-flowered *Aletnis* in the Altamaha Grit region. In May I saw it in the counties of Ware, Coffee (no. 2201), Wilcox, Irwin and Berrien, in rather dry pine-barrens. It was previously known only from the type-locality in northeastern Florida.

Dr. Chapman describes the flowers of both *A. aurca* and *A. farinosa* as either white or yellow, but it is now pretty evident that his yellow *farinosa* was *A. lutea* Small,† and his white *aurca*, *A. obovata* Nash; so the description of these two newer species has considerably facilitated our understanding of the genus. Like *A. lutea*, which often grows with it, and blooms at the same time, *A. obovata* differs from *A. farinosa* in range and from *A. aurea* in time of flowering.

With *A. lutea* and *A. obovata* at the place where I collected the latter (near Douglas) were a few specimens intermediate in appearance, probably hybrids.

HYMENOCALLIS sp.

At the end of April a *Hymenocallis* (no. 2179) in full bloom was conspicuous in the brackish marshes at the upper end of McQueen Island in Chatham County, about five miles from Savannah by the Tybee Railroad. It had only one or two flowers, usually two, on each scape, and the leaves were only about 2 cm. wide. This plant seems to have been known to LeConte, Feay,

* See Bull. Torrey Club 31: 20. 1904.

† See Bull. Torrey Club 32: 154. 1905.

and some of their predecessors, but in the present state of the literature bearing on the genus it is difficult to decide whether it has ever received a tenable name. It is certainly distinct from a species which grows in shady swamps in the Lower Oligocene region and has broad leaves and three or four flowers, blooming in July ; but there are probably not more than three species of *Hymenocallis* in the southeastern states outside of Florida, and one of them is very



FIGURE 5. *Hymenocallis* sp. in Seventeen Mile Creek, Coffee County. May 12. The creek was very nearly dry at the time, but water often covers this spot.

local, growing only along the fall-line. These three species are recognized in Mohr's Plant Life of Alabama, but it is not certain that they are correctly named there. The study of this genus is complicated by the fact that some species are said to produce more flowers in cultivation than in the wild state, and several of them were first described from cultivated specimens.

What seems to be exactly the same plant was seen in a creek swamp in Coffee County in May, and the illustration of it subjoined (FIGURE 5) may enable some future monographer to determine the species.

QUERCUS GEMINATA Small, Bull. Torrey Club 24 : 438. 1897

This has been known hitherto only as a shrub or small tree, ranging from Florida to Mississippi. While collecting timber specimens in the winter I had occasion to study the live-oaks on the sand-hills of the Altamaha Grit region, and found them to be all of this species. In Coffee County (no. 2050) it is sometimes thirty feet tall, with a trunk two feet in diameter, which when full grown is never erect, but ascending or curved.

Its distribution has not been well worked out yet, but it can probably be found in every county in the lower half of the coastal plain of Georgia. *Q. virginiana*, with which it was formerly confused, seems to be confined to the immediate vicinity of the coast and to the lime-sink region (which are just the regions where *Tillandsia usneoides* grows most luxuriantly). These two oaks are not as distinct as one might wish, however, and on Tybee Island I have seen specimens which might be referred about equally well to either.

CLAYTONIA VIRGINICA L.

In the swamp of the Oconee River near Beech Hill, Wilkinson County (see FIGURE 2), April 13 (no. 2120). This is the only place where I have seen it in the South. Its habitat is certainly very different there from what it is in New York City, where it is almost a weed.

SAGINA DECUMBENS SMITHII (Gray) Wats.

What seems to be this little-known plant was collected in a hammock (see page 453) on Tybee Island on April 30 (no. 2175). It was past flowering, but was readily distinguishable from *S. decumbens* by its almost simple, strictly erect, purple stems. It was previously known only from the coastal plain of New Jersey, and adjacent Pennsylvania.

There are a number of plants on the sea islands of Georgia,

growing in apparently perfectly natural places, whose indigeneity* is doubtful, and this is one of them.

MAGNOLIA ACUMINATA L.

Collected in rich woods at the extreme coastward edge of the Cretaceous region, about two miles northwest of Lumpkin, May 25 (*no.* 2227). I saw only one tree, but was informed by a native that there is a good deal of it in the vicinity, and that its wood is a favorite material for hoe-handles.

SAXIFRAGA VIRGINIENSIS Michx.

On sandstone rocks on a bluff along McBean Creek in the southeastern corner of Richmond County, March 26, in flower (*no.* 2061). This station is in the Eocene region, about twelve miles below the fall-line, and seems to be the only one known for this species in the coastal plain.

DIRCA PALUSTRIS L.

On the sandy bank of the Oconee River opposite Dublin, Laurens County April 20 (*no.* 2136). This locality was pretty well exposed to the sun, and is rather a remarkable one for a species which in New England prefers the coolest and shadiest places.

AESCULUS PARVIFLORA Walt.

In rich shady woods at two or three places between Lumpkin and Omaha, in Stewart County, in the Cretaceous region, May 24 and 25, with flower-buds very immature (*no.* 2225). I do not know of any other station in Georgia for it. The habitat and time of flowering given for this species by Chapman and Small seem to need some revision.

POLYCODIUM REVOLUTUM Greene, Pittonia 3: 325. 1898

On the sand-hills of the Allapaha River in the northeastern part of Berrien County, May 5 (*no.* 2191). A shrub about 6 feet tall, copiously branched. Previously known only from the type-locality in Lake County, Florida. This species is not mentioned

* I do not find this word in the dictionaries, but it appears in the *Journal of Botany* for March, 1905 (page 90), if not elsewhere, and there seems to be no other word to express the same idea.

in Small's Flora, but seems as distinct as any of those into which this little genus has recently been divided.

LEPTOPODA HELENIIUM Nutt. Gen. 2: 174. 1818

Frequent in moist pine-barrens and shallow ponds in various parts of the coastal plain, flowering in April and May. Collected in Bulloch (*no.* 2167) and Sumter (*no.* 2213) counties. This certainly seems generically distinct from *Helenium*, in which it has been placed by many authors; but I am unable so far to distinguish more than one species of *Leptopoda*.

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